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Abstract

The growing utilization of global virtual teams with members of different cultural backgrounds necessitates investigating whether the performance of culturally diverse virtual teams would differ from the performance of culturally homogeneous ones. Conflict management styles have been found to be of crucial importance for the success of virtual teams. This research-in-progress paper advances a model that links the collaborative conflict management style and the cultural diversity of virtual teams to their performance. A research design for testing the hypotheses is described.

Keywords: Culture, virtual teams, conflict management, collaboration, performance

Introduction

The term "virtual team" has come to mean a group configuration in which dispersed members are brought together by means of technology. Work groups such as dispersed cross-functional and inter-organizational teams are some examples of the growing utilization of virtual teams. Virtual teams continue to gain popularity as organizations are becoming more engaged in global business operations, and as technology for facilitating collaborative work is becoming more readily available. In fact, aided with the continuing advances in computer and information technologies, organizations are in a better position to cope with globalization pressures such as the need for coordination between geographically-dispersed units, employees, customers, suppliers, and other parties.

In recent years, the study of virtual teams has become the focus of much attention in the information systems (IS) community. Several papers have been written on issues pertaining to the process of building a virtual team and how to improve the performance of virtual teams working on certain tasks (Majchrzak et al. 2000, Malhotra et al. 2001, Maznevski and Chudoba 2000, Van Engelen et al. 2001, and Warkentin et. al. 1997)

An interesting aspect of the increased globalization of the business world is the cultural diversity of the workforce involved in collaborative virtual work. As a result, the performance of a global virtual team may be contingent not only upon technology and task factors, but also upon a virtual group's cultural homogeneity or heterogeneity. In fact, most prior IS studies that examined culture, however few, have focused on comparative aspects; i.e. comparing the results of information technology (IT) use in different countries usually against IT use in the US (e.g. Watson et al. 1994; Watson, et al. 1997; Griffith, 1998; Mejias et al. 1997; and De Vreede et al. 1999). This paper, on the other hand, examines whether the cultural composition of the virtual team itself might eventually have an impact on the performance of the team.

Apromising direction in virtual teams research is the recent focus on conflict management styles within virtual teams (Montoya-Weiss et al. 2001). In small work groups, conflict among members is likely to emerge for various reasons including the cultural makeup of the group. The group members' willingness and ability to collaborate with each other are likely to have a bearing on the overall performance of virtual teams.

In this paper we explore whether the cultural composition of synchronously conducted virtual meetings [teams] has any links to a specific conflict management style (i.e. the collaborative style) and performance of the virtual team.

The following section reviews the relevant literature in the areas of culture, conflict management styles, and virtual teams' performance. Section 3 presents the theoretical background and hypotheses. Section 4 describes a preliminary research design for testing the hypotheses. Finally, the conclusion, Section 5, briefly describes the expected contributions of this project.

Literature Review

Culture

Culture is "the collective programming of the mind which distinguishes one group (nation) from another" (Hofstede 1980-81). A few IS studies point to the possibility that the cultural characteristics of nations might lead to different outcomes of IT use in different countries (e.g., Watson et al. 1994; Mejias et al. 1996-97; De Vreede et al. 1997; Griffith 1998; Watson et al. 1997). There is also evidence that "national culture" has a significant effect on the relative levels of satisfaction and consensus across nations (Mejias et al. 1996-97). Clearly, prior IS studies reveal an agreement among researchers that culture does have an impact on the outcomes of IT use. An IS research agenda that focuses on assessing the implications of cultural characteristics of IT users certainly needs to be expanded.

Becoming aware of the cultural characteristics of countries helps us understand how people from different countries may think, feel, and behave differently when faced with problems (Hofstede, 1993). The empirical investigation of cultural diversity in virtual teams might provide us with measures for improving team performance.

Conflict Management and Virtual Teams

Researchers in the field of social psychology have documented five patterns of conflict management behavior that typically emerge in group settings (Thomas and Kilmann, 1974; Rahim 1983 & 1992). A virtual team's dealing with conflict would be expected to follow similar patterns to those studied in face-to-face meetings. The internal conflict management in virtual teams is found to be of crucial importance for their success (Montoya-Weiss et al, 2001). However, such behaviors or attitudes may be compounded by the special circumstances present in a virtual environment such as the remoteness of the members and the technology-supported interaction. The commonly reported styles of conflict management are:

- *Avoidance:* the intentional failure to engage other members in the group and to just go with the flow.
- *Accommodation:* the tendency to being more concerned with the others' needs and views than with one's own.
- *Competition:* having no concern for the others' interests or needs and to wrestle with the others so that one's views and concerns might be the dominant ones.
- *Collaboration:* the drive toward integrating the interests and needs of all parties involved.
- *Compromise:* occurs when members focus on finding a common solution that addresses everybody's interest.

In testing the proposed model (Figure 1) we will collect data pertaining to all five conflict management styles. However, the focus of this research will be on the collaborative conflict management style. When organizations resort to virtual teams, it is collaboration among team members that is sought. Therefore, we believe that the collaborative conflict management style is more relevant to our investigation of virtual teams than the other four.

Virtual Teams Performance

Performance of virtual teams has been commonly studied by assessing outcomes such as decision time, member satisfaction, participation, consensus, and perceived decision quality (Chidambaram and Jones, 1993; Lurey and Raisinghani, 2001; Montoya-Weiss et al. 2001; Straus, 1996; Suh, 1999; Turoff et al. 1993). In this research we intend to focus on the effectiveness rather than the efficiency of virtual teams and, thus, will exclude decision time from our research model

In addition, since this is an exploratory study, we choose to leave member satisfaction aside, at least for the meantime. With fewer variables, we hope to overcome a potential problem concerning the sufficiency of the sample size during the testing stages of this project. Therefore, our model, includes the following variables:

- *Participation:* Reflects the degree to which team members have engaged themselves in team discussions.
- *Consensus:* Generally refers to the extent to which team members agree on the decision reached.
- *Perceived decision quality:* Captures members' views of how good the final decision was.

Research Model and Hypotheses

Hofstede's work on cultural characteristics of countries provides some theoretical basis for understanding the impact of cultural diversity on the behavior of culturally heterogeneous groups. Culture affects almost all of the mental programs of individuals (e.g., attitudes, personality, satisfaction, perception, etc.), which in turn are reflected by our behavior (Hofstede, 1980-1981). Thus, the collective effort, member interaction and level of success of a group of people working to achieve a certain task would be subject to the influence of the behaviors exhibited by the members of that group. For example, Watson et al. (1994) observe that cultures exhibit different patterns of group interaction. Culture is obviously a source of variance in the human behavior. Therefore, a culturally heterogeneous group would be expected to display types of behavior and interactions that are different from those displayed by a culturally homogeneous group. In a virtual setting, the impact of cultural heterogeneity on group performance might ultimately result in performance outcomes that are different from those generated by a culturally homogeneous group.

Collaboration will clearly promote higher levels of member participation, as members who adopt this attitude would find it natural for them to get involved in the activities of the group. Collaborative virtual team members would be more inclined toward active participation and involvement in group discussions. In addition, the fact that members of a virtual team retain a great deal of anonymity will help foster higher levels of member participation. Moreover, due to the parallel nature of comment posting in a synchronously held virtual meeting, higher member participation will also be promoted. However, we expect membership in a culturally diverse group to have a negative effect on the potential for a collaborative style of conflict management to emerge in a virtual team. The cultural diversity of a group of decision makers might be a source of psychological pressures such as discomfort and weak feelings of belonging to the group. In the case of a virtual team, cultural diversity might lead to feelings of rivalry among members causing them to stay away from a collaborative spirit in favor of a more competitive, less conciliatory approach to conflict resolution. Therefore,

Hypothesis 1a: *The collaborative conflict management style will exert a positive impact on a virtual team's level of participation.*

Hypothesis 1b: *The cultural diversity of a virtual team will weaken the positive effect that the collaborative style will have on participation.*

The collaborative conflict management style can also be expected to have positive effects on consensus. We expect that team members who are willing and ready for collaborating with others will expend effort and energy in order to achieve mutually acceptable decisions by the virtual team. The more collaborative team members are, the higher the likelihood that they will arrive at decisions that are agreeable to all involved. Similar to hypothesis 1b, we expect cultural diversity to have a weakening impact on the positive effect of collaborative attitude on consensus. Therefore,

Hypothesis 2a: *The collaborative conflict management style will exert a positive impact on a virtual team's level of consensus.*

Hypothesis 2b: *The cultural diversity of a virtual team will weaken the positive effect that the collaborative style will have on consensus.*

As members of a virtual team participate actively in group discussions, it is likely that they will perceive the final decisions to be of high quality. More discussions and involvement by the members will help raise more issues and explore various perspectives and views of the decision problem. Members feeling that they have participated extensively will lead them to be more satisfied with the quality of their work. Therefore,

Hypothesis 3: *Member participation in a virtual team's discussions will have a positive impact on the members' perceived decision quality.*

The ability to arrive at decisions that are agreeable to the virtual team members will also lead the team members to develop favorable feelings toward the quality of the final decisions. Thus, the higher the level of consensus in a virtual team, the higher will the members perceive the quality of the final decisions to be. Therefore,

Hypothesis 4: *The level of consensus in a virtual team will have a positive impact on members' perceived decision quality.*

Figure 1 presents the proposed research model. At this stage, it is necessary to point out that we are treating cultural diversity as a moderating variable for two reasons. First, conflict management styles describe attitudes displayed by individuals when dealing with internal conflict in a group. It may not be entirely accurate to say that diversity will lead to the emergence of specific conflict management styles since these attitudes originate from within the individuals themselves and in relation to the task at hand. However, due to cultural diversity, the extent to which conflict management styles affect a group's experience may be different from that when a group is culturally homogeneous. Second, as mentioned earlier, this is an exploratory study in which one has to start somewhere. We start by treating cultural diversity as a moderating variable.

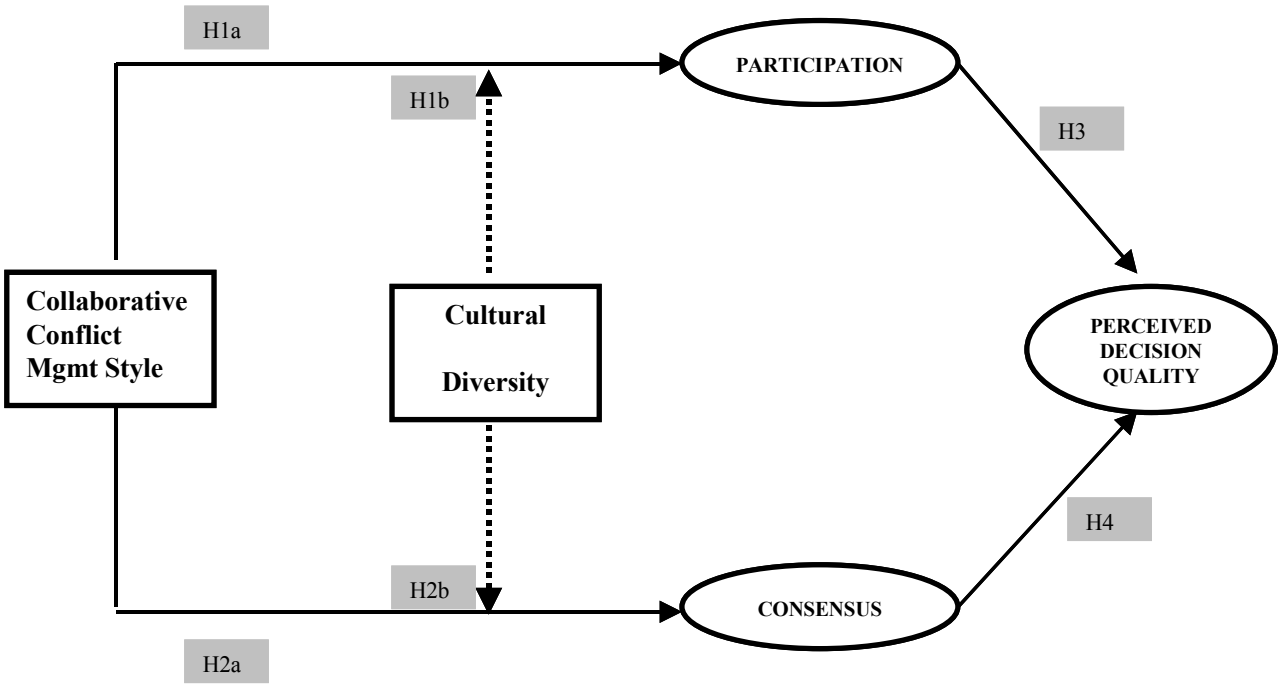

Figure 1. Research Model

Research Design

Experiment

The research hypotheses would be tested via a two-stage experiment. Stage I is a pilot study of about 20 virtual teams consisting of graduate students from leading management schools in the U.S. and India. Each group will consist of 4 members. Ten of these teams will be made of students from the same country (i.e. five teams in India, and five teams in the U.S.). The treatment group will be made of 10 culturally-diverse teams. Membership in either group will be random and the virtual teams will be communicating synchronously via a web-based software. The researchers will ensure that the culturally homogeneous groups will consist of only students who are nationals of the country they represent. The results of Stage I will be used to improve the design of the experiment for Stage II in terms of software configuration so that unexpected difficulties might be overcome. In addition, we hope to fine tune our measurement instruments based on our experience in Stage I.

Regarding the specifics of the experiment, the meetings are expected to last around one and a half hours, which should be enough time for the participants to conclude discussions and fill out the measurement instruments. The assigned task will require participants to reach a final decision regarding an issue that is of interest to all virtual team members. Moreover, the software to be used is a distributed group decision support system. It has various features such as parallel commenting, anonymous membership, and voting.

Variables Measurement Plan

1. Collaborative conflict management style:
   A 5-item scale will be used to measure the collaborative effort in each virtual team as perceived by the team members. The items focus on *openness to issues, working on solutions that satisfy all members, exchanging information with other members and so on.*

2. Cultural diversity:
   This is a binary variable, which represents cultural homogeneity or diversity.

3. Consensus:
   Will be measured by analyzing the members' votes on the final decision.

4. Participation:
   Will be measured via content analysis of things such as the number of comments made by individual members and also by using a Likert scale instrument on perceived equity of participation.

5. Perceived decision quality:
   Will be measured using a Likert scale instrument that includes items on usefulness, relevance, and comprehensiveness of the final decision.

The validity of some of the measurement instruments that will be used has already been established (Montoya-Weiss et al. 2001). Some other instruments that have been developed by the researchers for this research have to be validated.

Conclusion

This study will contribute to a better understanding of the contingencies of virtual teams and the interrelationships that might exist between cultural diversity, conflict management style and performance of virtual teams. We would like to point out a few things regarding the proposed model:

1. This paper presents an exploratory study that we consider as a first step toward a more solid understanding of the impact of cultural diversity on virtual teams performance.

2. Both diversity and conflict are multi-dimensional constructs. The results of this study, whatever they might be, cannot be generalized to other contexts involving different team compositions or different types of tasks.

3. Cultural diversity might have a dual influence in terms of creating both cognitive conflict, and affective conflict. Investigating these issues is beyond the scope of the reported study.

It is hoped that the outcome of the proposed experiment should provide us with more insight into the performance of virtual teams. Moreover, the gained knowledge should help us design more effective virtual teams that are appropriate for the increasingly multi-cultural nature of the global workforce.

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